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TITLE : METHOD FOR FORMING ULTRATHIN PROTEIN FILM FROM TRACE OF SAMPLE

ABSTRACT : PURPOSE: To obtain an ultrathin protein film by adding an aq. protein soln. contg. a surfactant to the surface of a solvent phase or a gel phase under the conditions insolubilizing protein.

CONSTITUTION: An aq. protein soln. is prepd. by dissolving a protein (e.g. ferritin) in an amt. of about 0.78μg or higher per cm^2 of water surface, a surfactant (e.g. a nonionic surfactant comprising a polyoxyethylene alchol) in a concn. of about 0.36%, and 0.15mol of NaCl in water. A subphase is formed by filling a petri dish, etc., having a specified area with an aq. soln. obtd. by adding 0.15mol of NaCl to 0.1mol of an acetic acid buffer soln. to adjust the pH to 4.1, or with an org. solvent having a surface tension of about 60mM/m (e.g. glycerol or ethanol), or with a gel (e.g. agar). When the tip of a pipet full of the protein soln. is brought into contact with the surface of the subphase, the soln. spreads instantly, giving an ultrathin protein film. When a subphase formed by adding about 5% $CdSO_4$ to the buffer soln. is used, an ultrathin film is obtd. wherein protein molecules are linked two- or threedimensionally.